Justifications for Exemptions from Construction Permitting
567 IAC 22.1(2) "m", "x(27)", "jj through "mm"

m. Revised storage tank exemption. Increasing the capacity cut off would make this exemption consistent with revised capacity cut off from 40 CFR Part 60, Subpart Kb. Volatile organic compounds (VOC) emissions were calculated using the Tanks4 program on a tank with a capacity of 19,905 gallons at 10 turnovers storing gasoline at Reid vapor pressure 13 (6.8 psi average vapor pressure). The tank was assumed to be vertical with a fixed roof, paint gray, and with no controls employed. Results were a working loss of 2019 lbs/yr, a breathing loss of 2168 lbs/yr, and total emissions of 4188 lbs/yr (2.09 tons/yr).

x (27): Application of hot melt adhesives. Hot melt adhesives are considered to have zero VOC emissions and 100% solids, per EPA Method 24 (40 CFR 60 Appendix A). When heating hot melt adhesives to their application temperatures, some volatile components may be produced. However, when applied at the suggested temperature, the weight loss from the change of state from a solid to a molten liquid to a solid is insignificant. Requiring a safety switch to shut down the equipment if the manufacturer's recommend temperatures are exceeded is an additional measure to ensure insignificant VOC emissions. In addition, closed-pot systems present only a small area where fumes may develop between the application equipment and the substrate. As for particulate emissions, the transfer efficiency of hot melt adhesives is nearly 100% due to the limited target distances allowed to maintain the proper application temperature at the substrate. It should be noted that California's South Coast Air Quality Management District considers hot melt adhesives to have zero VOCs and 100% solids, one of the most restrictive VOC regulations for adhesive.

jj: Product labeling using laser and ink jet printers. The exemption was developed using a worst case scenario of 1,000 gallons throughput using material with a VOC density of 7 lbs/gal. Assuming 100% evaporation of the VOC emissions, the annual facility-wide potential to emit (PTE) from these types of labeling processes will not exceed the current substantial small unit (567 IAC 22.1(2)"w") VOC threshold of 3.75 TPY on a facility wide basis.

kk. Equipment related to research and development (R & D) activities at a stationary source. This exemption would exempt all equipment or processes used in R&D activities at a facility provided that the emissions from the R&D equipment are accounted for within the exemption limits. The trigger levels for this exemption are the same as the state implementation plan (SIP) approved small unit exemption thresholds (567 IAC 22.1(2)"w"). The R & D thresholds are more restrictive than the small unit exemption thresholds since the exemption is applied on a facility-wide basis instead of a unit basis. The benefit of the R & D exemption over the small unit exemption is that it is no longer necessary to maintain an exemption justification document for each R&D emissions unit. The justification is replaced by the requirement to maintain calculations of emissions from R&D activities facility wide. This flexibility is possible due to the restriction on emissions from all R&D activities covered under the exemption at a facility to levels below the thresholds for an individual unit under the small unit exemption.

ll. A Regional Collection Center (RCC) involved in the processing of permitted Hazardous Material from Households and Conditionally Exempt Small Quantity Generators (CESQG). A RCC can handle a wide variety of materials containing differently quantities of VOC. To conservatively quantify the overall processing limit of VOC containing material, the emission factor for handling gasoline was used.

A worst case scenario using the emission factor for splash filling of tanks with gasoline resulted in 1,200,000 lbs or 1.1 tons of VOC emissions (EF AP-42, Table 5.2-7), assuming that all material handled at the RCC has VOC emissions equal to gasoline. The gasoline emission factor is much higher than for drying latex paint. This is well below the VOC threshold for the small unit exemption and the related requirement to maintain a small unit exemption justification document. In 2004 the highest annual RCC throughput in the state was approximately 380,550 lbs of VOC containing material. The 1,200,000 lbs. throughput will be a practical facility limit that also allows for growth.

The assumptions used in the calculations included the following:

- Potential emissions include only VOCs and HAPs
- Includes both Regional and Satellite collection sites
- Does not include other non-processing emission units (i.e. standby generators, waste oil heaters)

1,200,000 lbs. throughput material x 0.00183 lbs. VOC/ 1lbs. gasoline = 2196 lbs or 1.1 tons VOC

The highest VOC emitting activity at the RCC is drying of latex paint. This does not occur at all facilities but does occur at some of the largest facilities. The paint is assumed to have 0.93 lbs VOC/1 gal. and a density of 11 lbs/1 gal. The threshold used to restrict the process is 5.0 tons/yr. A limit of 120,000 lbs of latex paint is needed to stay below the 5.0 tons/yr threshold. Since the values used are extremely conservative, the lbs. material limit was rounded up to 120,000 lbs. RCCs typical only dry a small percentage of the total latex paint received and some do not dry paint at all.

$$\frac{0.93 \text{ lbs.VOC}}{1 \text{ gallon latex paint}} \times \frac{1 \text{ gallon}}{11 \text{ lbs. material}} = \frac{0.085 \text{ lbs. VOC}}{1 \text{ lbs. latex paint}}$$

$$\frac{0.085 \text{ lbs. VOC}}{1 \text{ lbs. latex paint}} \times \frac{\quad x \quad}{10{,}000 \text{ lbs VOC}} = 117{,}647 \text{ lbs. latex paint}$$

mm. Cold solvent cleaning machines. A work practice standard has been incorporated into this exemption to prevent additional evaporative solvent loss during idle periods. The halogenated exclusion is designed to avoid regulatory conflict with 40 CFR 63, Subpart T. It is important to note that the vapor pressure justification is identical to Illinois Administration Code Section 201.146(v). This justification was used because it has already been approved by EPA Region V and should be eligible for reapplication in the State of Iowa.